



Central Institute of Post Harvest Engineering & Technology Ludhiana

Our Slogan: Produce, Process and Prosper

CIPHET E – Newsletter for January 2009
Vol. 4 No. 1

Director's Column



Dear All,

To accelerate the food processing activities in India we need to train the human resource in taking up this area as a viable enterprise and for that young agribusiness and rural development management graduates are most appropriate. Hence CIPHET has contributed an interactive course on Agro processing for the students of Post Graduate Diploma in Rural Development management at Hyderabad. The course has been a huge success as student showed great interest in the knowledge as well as got interested in getting the hands on experience.

The role of women in organized or scaled up agro processing activity has so far remained very little though they are mainly responsible for food processing and post harvest handling at household level. If their role is enhanced and scaled up to handle the post harvest activity it will be a right step in preventing post harvest losses and increasing the farmers income. Hence a network project was launched by NRCWA Bhubneswar on Assessment of gender issues and identification and refinement of selected women specific technologies in horticultural corps with centres at IIHR; CTCTRI; CISH; GBPUAT, Ranichouri and CIPHET which is responsible for post harvest aspect.

The CIPHET scientists had designed and fabricated a Kinnow grading and waxing plant in the year 2003 under NATP project. The plant was successfully tested and evaluated as part of NATP project and later on used for training and demonstration mostly without using the material as large quantity was required even for demonstration. In this financial year we had decided to give this plant to willing entrepreneurs on custom hire basis so that the plant will be kept in operating condition all the time. M/s Satpal Bansal, Abohar a progressive entrepreneur took up this unit for operation, the firm so far in a month has processed about 25 tones of kinnow. The capacity of the plant is about 6-7 q/h.

During this month CIPHET conducted 4 EDP/training programmes namely 1) Post harvest management of kinnow and garlic organized for the farmers of Bhatinda District 2) Post Harvest Management and Value Addition of Horticultural Produce for officials Government of Utrakhand 3) Processing of Medicinal and Aromatic Plants and 4) EDP on Processing of Beetroot and Carrot. Under the scheme of one day workshops at a fee of Rs. 75000, CIPHET conducted one Day Workshop on Modern food processing technology for University of Agricultural Sciences, Dharwad

This month was full of Joy at CIPHET with celebration of New Year day. On this occasion CIPHET employees took resolutions for betterment of institute and society, Lohri celebration along with other central government employees of Ludhiana and celebration of national festival of Independence Day. One of our scientists Dr. Kadam was awarded young engineers award and institute honored the best employees by giving away the trophies. To help CIPHET to march head and fulfill its commitments three new senior scientists have joined us.

This month we have come out with a processing technology for value addition of Sapota in the form of Soy Fortified Protein Enriched Mix Fruit Leather.

With best regards,

R.T. Patil
Director

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Brainstorming Meet on Diploma in Agricultural Research Management

The diploma and formal training on agricultural research management is important for realizing increased research productivity through optimal utilization of resources through application of modern management principles and practices. Unlike the personnel working in industrial and business establishments, scientists engaged in agricultural research are seldom exposed to formal education or training in management. Without such exposure, they are often handicapped in their efforts to improve the efficiency and effectiveness of research in their organizations.

Although every scientist plays the role of research manager while leading a project, its relative importance varies with the level occupied by him in the organizational hierarchy. At the lower level, his role as a researcher becomes dominant; as one moves up on the hierarchy, other roles take over. While the basic university education prepares him to become excellent researcher in respective area, it does not equip him with necessary knowledge and skills that

are required to perform other roles more effectively. It is entirely left to the individual to gain through experience while leading a project.

Without undermining the importance of learning through experience (which is usually a long-term process), it becomes, therefore, necessary to expose the middle and senior level scientists to modern management principles and practices in order to improve their effectiveness in the managerial role they perform. Realizing the importance of such an exposure for those who aspire to assume managerial responsibilities, with the approval of Indian Council of Agricultural Research (ICAR) the National Academy of Agricultural Research Management (NAARM) is developing a Diploma Course in Agricultural Research Management. The NAARM organized a brainstorming session on this topic on 10th January, 2009 which also attended by Dr. R. T. Patil, Director, CIPHET.

One of suggestion from CIPHET was that the course should be considered as a skill development activity for all willing scientists rather than making pre requisite for becoming research manger especially the Sr. Scientist and Principal Scientist those who have shown initiative and leadership. This also should be open to private research organizations, research foundations and the universities. Another suggestion was that this course may also be offered as correspondence course so that all willing in service candidates constrained by timing can get the benefit.

Interactive Meeting of Director CIPHET with Students of PG Diploma in Rural Development Management

Dr. R T Patil Director, CIPHET addressed the students of NIRD, Hyderabad undergoing the studies for PGDRDM, on the topic of scope and potential of agro processing in India and promoting agro processing activities through public private partnership approach. The importance of Post Harvest Management and Value Addition need to be impressed upon the students of agri business management as well as rural development courses so that young manager are motivated to participate in this sun rise sector of Industry responsible for overall development of rural community.



Students of PGDRDM, NIRD with Dr. R. T. Patil, Director, CIPHET

Launching of Network Project at NRCWA, Bhubaneshwar

Indian Council of Agricultural Research has sanctioned a network project on “Assessment of gender issues and identification and refinement of selected women specific technologies in horticultural crops” to be implemented from National research Centre for Women in Agriculture at Bhubaneshwar. Dr. R. T. Patil, Director, CIPHET and Dr. R. K. Gupta, Head HCP and Incharge Abohar attended the launching of the project. Director CIPHET was a chief guest for launching of the workshop and he also chaired the Technical session 1. On 12th January, I attended and chaired the launching workshop of network project The CIPHET is one of the partners of this network project.

The women mainly look after the food processing and post harvest handling at household level. They are considered as good managers who manage the food and nutritional requirement of the household effectively in the limited budget which they get. They are highly knowledgeable in essential food ingredient sourcing and preserving nutrition by converting them into dehydrated powder or in pickle form. If their role is enhanced and scaled up to handle the post harvest activity it will be a right step in preventing post harvest losses and increasing the farmers income. The other centers of this network are NRCWA; IIHR; CTCTRI; CISH; GBPUAT, Ranichouri.

Custom Hiring of CIPHET Kinnow Grading and Waxing Plant

The CIPHET scientists had designed a Kinnow grading and waxing plant which was got fabricated from M/s Osaw Agro Industries (P), Ltd, Ambala and commissioned in the year 2003 under NATP project on Reduction in Post Harvest Losses in Fruits and Vegetables. The plant was successfully tested and evaluated as part of NATP project and later on used for training and demonstration mostly without using the material as large quantity was required even for demonstration. In this financial year we had decided to give this plant to willing entrepreneurs on custom hire basis so that the plant will be kept in operating condition all the time. M/s Satpal Bansal, Abohar a progressive entrepreneur took up this unit for operation, the firm so in a month has processed about 25 tones of kinnow. The capacity of the plant is about 6-7 q/h. The edible grade coating developed by the scientists from Indian Institute of Natural Resins and Gums was also demonstrated while the plant was in operation.



Plant in full operation

EDP Trainees under NITCON/RCED visit CIPHET, Abohar

Trainees who were attending Entrepreneurship Development Programme on Food Processing under Regional Centre for Entrepreneurship Development and NICON, Chandigarh visited CIPHET during 8-9th January 2009. Dr. R.K. Gupta, Head, HCP have shown the CIPHET Show case and other research activities to the trainees.

	
<p>NITCON trainees seeing shrink wrapping machine</p>	<p>The anola processing is being demonstrated to trainees</p>

Training on post harvest management of kinnow and garlic organized for the farmers of Bhatinda District

A group of 15 farmers sponsored by Department of Horticulture, Bhatinda were under training during 15-16 and 19-21 January at CIPHET, Abohar. They were trained on Post harvest management of Kinnow and value addition of garlic. On 16th January they also saw the State level Kinnow show that was organized by the Department of Horticulture, Government of Punjab at Abohar. Further, they also visited Kinnow grading and waxing plant and Punjab Agro-Juices Limited, Abohar besides, High tech Nursery at Mauzgarh. Dr. R.K. Gupta, Head, HCP and Sh Rajesh Tatai, TO were the Course Coordinator and Co-Coordinator respectively.

	
<p>Five day training programme for farmers of Bhatinda</p>	<p>Trainees at Kinnow Show</p>

Training on Post Harvest Management and Value Addition of Horticultural Produce

One week training programme was organized on Post Harvest Management of Fruits and Vegetables w.e.f. 19-25th January, 2009 at CIPHET, Abohar. Officials from Department of Horticulture, Ranikhet, Almora, Government of Utrakhand participated in the training programme. During the inaugural of training, Shri Tek Chand, Deputy Director, Horticulture, Abohar has briefed about the development of Punjab Horticulture and importance of CIPHET in loss reduction and value addition of horticultural produce. The training included various lectures including post harvest management of fruits and vegetables, role of cold chain in post harvest management of perishables, MAP including minimal processing of fruits and vegetables, palsticultural techniques for better productivity of fruits and vegetables, scope and uses of shrink packaging of fruits and vegetables and development of various value added products of fruits and vegetables. The training also included the practical classes on novel products from aonla, ber, guava, pomegranate etc. including demonstration of waxing plant. The participants were also exposed to different laboratory and field experiments going on different aspects of post harvest management of fruits and vegetables. The participants were also exposed to different field visits particularly multi-fruit juice plant, waxing and packaging unit of kinnow, hi-tech nursery and scientifically managed farmers orchards. The training was conducted by Dr. R. K. Gupta, HOD (HCP) as Course coordinator and Shri V.K. Saharan, Technical Officer, as Co-course coordinator.

Director CIPHET visited Regional Research Station of RAU and Layalpur Farm, Ganganagar

Dr. R.T. Patil, Director CIPHET along with Dr. R.K. Gupta, Head, HCP visited Lyallpur Model Farm and Nursery on 29th January 2009. During this visit Dr Patil met Mr. Kartar Singh Narula a National Udyan Pandit and his other colleague and discussed about the importance of post harvest technology for loss reduction and value addition of fruits. At and Regional Research Station (RAU, Bikaner), Ganganagar, Dr. Kaul, Senior Scientist of RRS explained about the variety improvement programme in citrus particularly in Kinnow through bio-technological interventions to produce virus free sustainable varieties of Kinnow aiming higher productivity.



Dr. RT Patil and Dr. Gupta with a legendary Farmer Sardar Kartar Singh



Dr. Kaul explaining the bio-technological interventions to produce virus free varieties of Kinnow

Udyan Pandit Sardar Kartar Singh Narula-A legend and Pride of Sriganaganagar



A graduate in agriculture of the first agriculture college of undivided India, Sardar Kartar Singh is a legend and pride of Ganganagar Rajasthan. He has been awarded hundreds of prizes and certificates in the several All India and State level competitions. His fruit nursery has a unique place in the states of Punjab, Haryana, Rajasthan and other parts of the country. Different kinds of citrus such as kinnow, sweet oranges group, Grapefruit, Local mandarin, Lemon, Lime, Sweet lime, Tangelos, Tangerines, Date palm, Aonla, Mango, Peaches, Apricots, Phalsa, and Almonds are the special commodities of his farm-‘Layalpur Model Farm’.

He was born on 22nd December 1922 at Layalpur (now in Pakistan). The whole of the area was decked with sand dunes when he took possession of the farm in 1947. However, by his enthusiasm, zeal and hardwork he has made his farm into a very good orchard, comparing very favourably with the orchards of the other advanced countries. He had planted Sheesham tree as windbreakers around his farm. The family started fruit plantation in 1952 with citrus and 1958 mangoes. Prime Minister Jawaharlal Nehru honoured Mr. Kartar Singh Narula with the Udyan pandit award at Trimurti Bhavan on 16th June 1963. He also won for All India guava competition in 1975. Layalpur farm of Sriganaganagar is the pride not only of Rajasthan but of the whole of India.

New Year Celebration at CIPHET

नववर्ष के शुभ अवसर पर स्टाफ मनोरंजन क्लब ने एक समारोह आयोजित किया। डा० आर. टी. पाटिल, निदेशक सीफेट, लुधियाना ने इसकी अध्यक्षता की। डा० एस. के. नन्दा, परियोजना समन्वयक (पी.एच. टी.) एवं क्लब के अध्यक्ष ने इस अवसर पर सभी सदस्यों को नववर्ष की हार्दिक बधाई दी एवं प्रगति की कामना की। डा० आर. टी. पाटिल ने अपने संबोधन में क्लब के सदस्यों को बधाई दी। उन्होंने सभी सदस्यों से इस अवसर पर एक संकल्प लेने को प्रेरित किया जो प्रत्येक सदस्य अपने दैनिक कर्तव्यों के अतिरिक्त संस्थान के उत्थान के लिए इस वर्ष करें। क्लब के सदस्यों ने कुछ सांस्कृतिक कार्यक्रम भी पेश किये।



A friendly cricket match at CIPHET as part of new year celebration

Independence Day Celebrations

कर्मचारी मनोरंजन क्लब के तत्वाधान में संस्थान में 60वें गणतंत्र दिवस समारोह का आयोजन किया गया। निदेशक, सीफेट, लुधियाना ने ध्वजारोहण किया। राष्ट्रगान के उपरान्त अपने उद्बोधन में निदेशक ने संस्थान की गत वर्ष की उपलब्धियों का विवरण दिया। उन्होंने सीफेट के भविष्य के कार्यक्रमों के बारे में अवगत कराया एवं संस्थान की उन्नति की कामना की। इसके उपरान्त बच्चों की खेलकूद प्रतियोगिताएं आयोजित की गयीं। इस दिन सीफेट ने वर्ष के सर्वोत्तम कर्मचारियों को पुरस्कृत किया। वैज्ञानिक वर्ग में डा० डी, मृदुला, वरिष्ठ वैज्ञानिक, तकनीकी वर्ग में श्री पवन कुमार, टी-2, प्रशासनिक वर्ग में श्री तरसेम सिंह, (UDC) एवं श्रीमती सुनीता राना (LDC) को पुरस्कृत किया। इसके उपरान्त क्लब ने सांस्कृतिक कार्यक्रम का आयोजन किया। इसमें क्लब के सदस्यों, उनके परिवारजनों एवं बच्चों ने मनमोहक सांस्कृतिक कार्यक्रम प्रस्तुत किये। इसको आयोजित करने में मिसेज मंडल, मिसेज नरसैया, श्री संजय कुमार एवं श्रीमती वीरांबाली में अपना योगदान दिया। इस कार्यक्रम को निदेशक सीफेट, क्लब के अध्यक्ष एवं अन्य सदस्यों ने बहुत सराहा। कार्यक्रम के अन्त में खेलकूद प्रतियोगिताओं के विजेताओं एवं उपविजेताओं को डा० आर. टी. पाटिल, निदेशक, सीफेट, लुधियाना, मिसेज पाटिल, डा० एस. के. नन्दा एवं मिसेज नन्दा ने पुरस्कार वितरण किये।

Lohri Celebration of Central Government Employees of Ludhiana at CIPHET Campus

The festival "Lohri" symbolizes agricultural abundance and prosperity and also indicates the passing off the winter. It is normally celebrated on 13th January every year. The festival is celebrated also in other states of India and is known as 'Makar Sankranti', 'Vishu', 'Pongal' etc. At the behest of Central Government Employees Welfare Coordination Committee (CGEWCC), Ludhiana, the celebration of Lohri this year was hosted at Central Institute of Post Harvest Engineering and Technology (CIPHET), Ludhiana. The programme of celebration included Lightening of Community Bon Fire and Cultural programme and Sports events. The staff recreation club had organized and successfully implemented the event. All the Heads and Staff of Central Government Offices in Ludhiana were invited as per the list received from MSMI, Ludhiana. The festival was attended by several Central Government Offices, especially MSMI, ATI, MERADO, Income Tax Office, Intelligence Bureau etc. besides CIPHET (about 200 persons including family members).



Lohri celebration by Central Government Employees of Ludhiana at CIPHET

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EDP on Processing of Medicinal and Aromatic Plants

A one week entrepreneurship development programme on “Medicinal and Aromatic Plants” was organized during 2 January – 8 January, 2009 at CIPHET, Ludhiana. The EDP was coordinated by Dr D Dhingra, Senior Scientist, Division of Transfer of Technology. The program was sponsored by Bhesaj Vikas Unit, Horticulture Deptt., Uttarakhand, Dehradun. The participants were led by Dr S S Mishra, Chief Pharmaceutical Expert, Bhesaj Vikas Unit and Dr Vijay Prasad Bhatt, Scientist, HRDI, Gopeshwar. Twenty participants belonging to Bhesaj Vikas Unit, Dehradun and HRDI, Gopeshwar, Uttarakhand attended the programme. The programme started with presentation of CIPHET showcase by Dr R T Patil, Director CIPHET. The lectures were mainly on scope and cultivation of medicinal and aromatic plants, drying of medicinal plants, steam distillation of medicinal and aromatic plants for aromatics, biochemical composition of medicinal and aromatic plants, quality aspects of medicinal and aromatic plants, legislation and policy of medicinal plants etc. The lectures were covered by faculty drawn from CIPHET and PAU, Ludhiana. Field visits to a primary steam distillation unit of A M Todd at Jagraon and Himalayan Herbal Products, Malerkotla were arranged for the benefit of the participants. The EDP concluded with the result that development of protocols for processing of medicinal crops is required and could be taken up by CIPHET. The participants were also shown the laboratory facilities of CIPHET.



Inaugural function of EDP course on Medicinal and Aromatic Plants

CIPHET Conducts One Day Workshop for University of Agricultural Sciences, Dharwad

The CIPHET has a scheme for conducting sponsored one day workshop on Modern Food Processing Technology. The aim of these workshop is to create awareness about the scope and potential of food processing in India and they are conducted on the request of sponsoring agency. Such workshop either follows or precedes the regular Kisan Mela functions of the sponsoring organization. The workshop at CIPHET was conducted by Dr. S. K. Nanda, PC(PHT), Dr D Dhingra, Sr. Scientist and Mr. MP Singh Technical Officer from CIPHET,

Ludhiana during Jan 9-10, 2009. The workshop was organized by Agri Business and Export Knowledge Centre, UAS Dharwad with the help of Central Institute of Post Harvest Engineering and Technology Ludhiana; and was co sponsored by Visvesvaraya Industrial Trade Centre, VITC Building, Kasturba Road, Bangalore; Department of Horticulture, Government of Karnataka, Bangalore; National Institute of Agricultural Marketing, Jaipur; Karnataka State Agricultural Marketing Board, Bangalore; Centre for Entrepreneurship Development of Karnataka, Dharwad and Karnataka State Agril Produce Processing & Export Corporation Ltd., Bangalore. In the workshop the showcase of technologies developed by CIPHET was shown and explained along with lectures on project profiles and value addition and Technologies developed under AICRP on PHT for Karnatka region. There was a lively interactions with private entrepreneurs during the workshop. Sh M P Singh, Technical Officer organized an exhibition on this occasion. Honb'le Sh Murugesh Nirani, Minister in the Karnatka Government, visited the CIPHET exhibition. He was accompanied by Hon'ble Dr J.H. Kulkarni, V.C., UAS, Dharwad.



Inaugural function of CIPHET conducted awareness workshop on Modern Food Processing Technologies at UAS Dharwad



CIPHET Exhibition at Dharwad



Dignitaries visiting the CIPHET Exhibition



Demonstration of CIPHET Banana Hand Cutter

EDP on Processing of Beetroot and Carrot

An Entrepreneurship development programme on 'Processing of Beetroot and Carrot for Making Powder' was organized during 24-30 January 2009 by Food Grains and Oilseeds Processing Division (FG&OP Division) at Central Institute of Post-Harvest Engineering and Technology, Ludhiana. Dr. S.K. Nanda, In-Charge Director and Project Coordinator (PHT) inaugurated the programme. Twenty five progressive farmers and small scale processors from different parts of Punjab participated in this EDP. The aim of EDP was to develop possible entrepreneurs for beetroot and carrot processing. The training programme included the lectures on nutritional importance, processing, and packaging of fresh and processed products, food standards and laws and preparation of project profiles. The EDP was guided by Dr. K.K. Singh Head, FG&OP Division and Coordinated by Dr. Mridula D., Sr. Scientist, FG&OP Division and Dr. Dilip Jain, Sr. Scientist, TOT Division.



Concluding session of EDP on processing of beetroot and carrot powder at CIPHET, Ludhiana

CIPHET gets NAIP Sub-Project on Novel Biotechnological Processes for Production of High Value Products from Rice Straw and Bagasse

India is the second largest producer of rice and sugarcane in the world after China and Brazil, respectively. It produces about 22 and 42 % of the total rice and sugarcane produced in the world (FAO 2008). Both of the crops leave behind a tremendous amount of residues which is not put to substantial use in India. These agro residues, which are considered waste or low value commodity, however, are rich source of complex sugars and other important molecules (lignin) that can be biotechnologically utilized through microbial interventions into value added products. Keeping, this in view, an NAIP was proposed and approved by making a consortium of different Institutes, like Guru Nanak Dev University Amritsar as a lead centre , CIPHET, Ludhiana and IIT, New Delhi as Co-operating centres. The project has been approved with the total cost of about Rs. 326.75 Lakhs. Dr. H S Oberoi, Scientist (SS) is Consortium Principal Investigator (CPI) and Dr. V K Bhargav, Scientist (SS) is Co-PI from CIPHET Ludhiana.

- cryogenic processing of foods, AUTO CAD/ Pro E and statistical analysis software packages.
- iii) Remuneration Rs. 18000/-+ HRA (Rs. 17000/- + HRA for Masters degree holders) per month consolidated
- iv) Age limit 40 years for Men and 45 years for Women

Terms and Conditions:

- i) The above positions are purely on temporary basis and co-terminus with the project.
- ii) There is no provision for absorption/ re-employment in ICAR/ CIPHET/ NAIP after completion of time bound project.
- iii) Place of work will be CIPHET, Ludhiana.
- iv) No TA / DA will be paid for attending the interview
- v) The applicants must bring with them original documents and a brief of research work carried out during postgraduation / Ph.D. along with one set of photocopy at the time of interview.
- vi) No objection certificate from the employer in case he / she is employed elsewhere.
- vii) Experience certificate in original (if any)
- viii) No separate interview call will be issued to candidates.
- ix) All eligible candidates are requested to be present 30 minutes before scheduled time on the date of Interview for necessary formalities.
- x) Canvassing in any form will render the candidate disqualified for the post.
- xi) The Director, CIPHET, Ludhiana's decision will be final and binding in all respects.

Note : The applications with detailed bio-data in the following proforma (1) Name of the candidate (2) Father's Name (3) Date of birth (4) Present address (5) Permanent address (6) Qualifications (starting from 10th board) (7) Experience, if any (9) Publications etc. may be sent through registered post or email (singh_ciae@yahoo.com or kadam1k@yahoo.com) with passport size photograph to Dr. K. K. Singh, Consortium Principal Investigator, (CPI), NAIP & Sub - project, and Head FG & OP Division, CIPHET, PO : PAU, Ludhiana – 141 004, Punjab. Tel No. 0161- 2313112; Fax: 0161-2308670; (M) 09417429862 (KK Singh) 09417596894 (D M Kadam) and attend the walk-in-interview as per above schedule.

Joining:

Dr. Pranita Jaiswal



Dr. Pranita Jaiswal has joined CIPHET on 30th January 2009 as Senior Scientist (Plant Microbiology). She has obtained her BSc (Botany, Zoology, and Chemistry), MSc (Botany) and PhD (Botany) degrees from **Banaras Hindu University Varanasi**. She has earlier worked on **“Screening and Selection of N₂- Fixing Cyanobacteria Tolerant to Elevated Levels of Inorganic Carbon**, Cyanotoxins and its effect on agriculturally relevant organisms and Biocontrol efficacy of cyanobacterial metabolites on pathogens infecting onion and garlic.

Dr. Anil K. Dixit



Dr. Anil K. Dixit, joined CIPHET as Sr. Scientist (Ag. Economics) on 31st December 2008. Dr. Dixit has Doctorate degree in Agricultural Economics from CCS Haryana Agricultural University Hisar (India). He has earlier worked for on World Bank Funded NATP project on 'Household Food and Nutritional Security' and on 'Status of Horticulture and Market Opportunities in Uttarakhand' His area(s) of interest are Production Economics, Marketing and Policy Analysis.

Dr. Deep Narayan Yadav



Dr. Deep Narayan Yadav joined the CIPHET on 12th January 2009 as a Senior Scientist (Food Technology). He obtained M Sc. Food Technology, Ph D Food Technology (From GB Pant University of Agriculture and Technology, Pantnagar). He had earlier worked on Development of Various types of Instant products i.e. protein enriched instant halwa, protein enriched instant upama, Ready-to-eat-frozen chapaties etc.

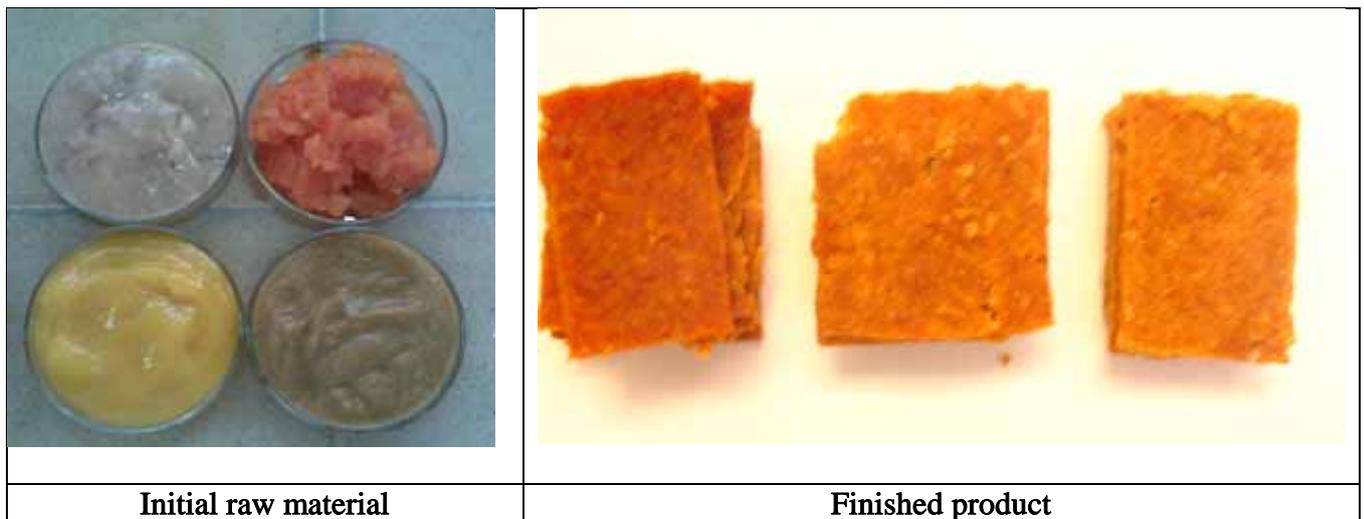
Technology of the month

Development of Soy Fortified Protein Enriched Mix Fruit Leather from Sapota

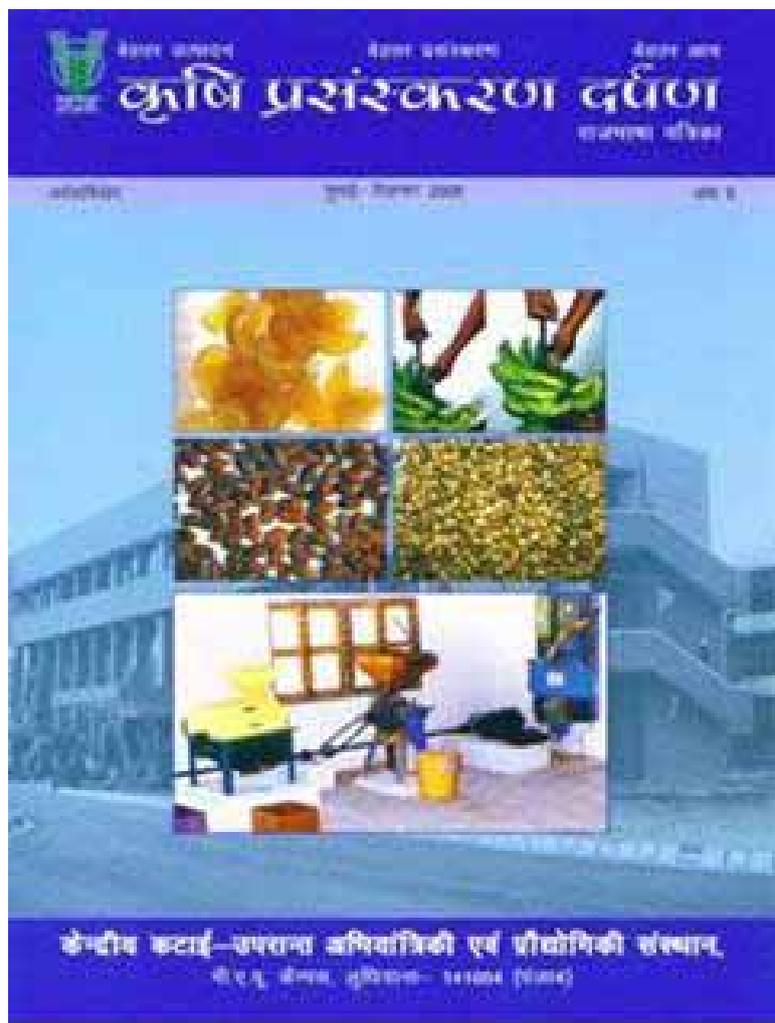
Sapota (*Achras zapota*) is a sub tropical fruit and is native of Central America. In India, it is mainly cultivated in the coastal areas of Maharashtra, Karnataka, Uttar Pradesh, West Bengal, Punjab and Haryana. India is the largest producer of Sapota (*Achras Zapota*) in the world. . It bears fruits in clusters, and the spindle shaped fruits of 11 to 13 cm length are suitable for the production of dry flakes, a trait that overcomes the shortcomings of poor keeping quality. The fruits are excellent in taste with honey brown flesh supporting a good number of large, black, ovate seeds inside but external surface of the fruits have a dusty, brown coat, unattractive look with very poor keeping quality. The latex or the milky fluid that flows out, on an incision made on any part of the tree, is used in making chewing gum. The fruits are highly perishable in nature and, therefore, a long period between harvesting and marketing is virtually ruled out. As a result glut is created in the market leading to lower price and wastage of the produce. The fruits are excellent in taste with honey brown flesh supporting a good number of large, black, ovate seeds inside but external surface of the fruits have a dusty, brown coat, unattractive look with very poor keeping quality. The fruits are highly perishable in nature and, therefore, a long period between harvesting and marketing is virtually ruled out. As a result glut is created in the market leading to lower price and wastage of the produce.

To overcome this problem, it must be converted in value added products having enhanced shelf life. Soybean is a cheap and excellent source of protein that holds great promise for protein enriched products. Thus, soy-residue (okra) was added in mixed fruit leather for protein enrichment, better taste and crispiness of the product. The mixed fruit leather was prepared by mixing 60-80% sapota pulp in various proportions with different fruit pulps namely mango, papaya and banana at the rate of 5% each to have better taste and flavour of the product. Soy paste (okra) at the rate of 10 % was also added to this mixture. Total soluble solids (TSS) of the mixture are adjusted up to 30 brix by adding sugar syrup. Fruit leather

was obtained by drying of pulps in tray dryer at 60°C for about 10 to 11 h. and analyzed for proximate composition. The fruit leather prepared by mixing sapota pulp (75%), soy paste (10%) and other fruit pulps (each 5%) was rated best among all combinations. Organoleptic evaluation showed that fruit leather made by mixing selected pulps and soy paste gave an overall rating of 7.5 for the optimized product. Nutritional composition of fruit leather in terms of moisture, TSS, protein content, total sugar, reducing sugar, vitamin-C and acidity was found to be 22.15%, 70.0 Brix, 5.12%, 52.82 %, 10.5%, 28.0 mg/100g and 1.64% respectively. Water activity of the fruit leather was recorded to be 0.586. Textural parameters namely hardness, stickiness, stringiness and cutting strength of the product was measured as 4047.4g, (-) 950.2g, 1.02mm and 43.02 N respectively. Overall quality of mixed fruit leather, decreased during storage but the product was still acceptable after one month of storage.



Publication of the month



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